



Fundamental Physics Program and the NASA Mission

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Oxnard, California**

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1EHT



Physical Sciences Research (PSR) and the NASA Mission

O
B
P
R

- To understand and protect our home planet



PSR Fundamental and Applied Research

- To explore the universe and search for life



PSR Fundamental Research
PSR Strategic Research

- To inspire the next generation of explorers



PSR Fundamental Research
PSR Strategic Research

... as only NASA can

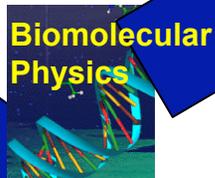




Research for Science and Exploration



"The common ideas of physics have been applied over distances ranging from the realm of string theory to the furthest reaches of the universe. The results have allowed an understanding of a staggering variety of phenomena and lay the foundation for further research as we probe new frontiers at all distances." (NRC/BPA report)



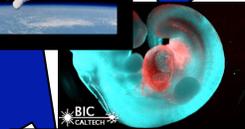
Materials

IG

Combustion



Fluids



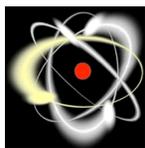
Biotechnology



Bioengineering



OBPR Physical Sciences Research Discipline Elements

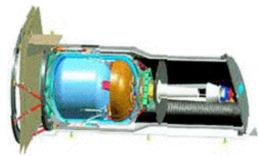
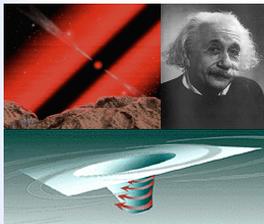


Fundamental Physics

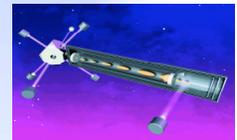
Expand our Understanding and Enrich Lives

Standard Model

Relativity Test

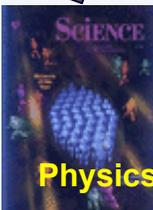
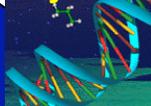


Free-Flying
nano-gravity
Laboratory

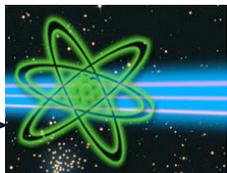


Space-based
Atomic clocks

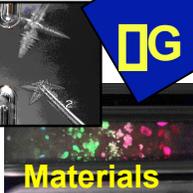
Biomolecular
Physics



Physics

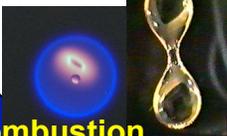


Low-Temperature
Physics



Materials

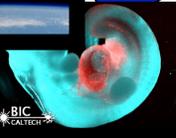
Combustion



Fluids



Biotechnology



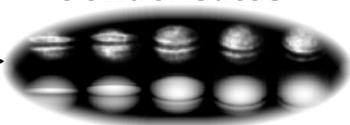
Bioengineering



Department of Energy
AMS collaboration

Department of Commerce
NIST investigators

Bose-Einstein
Condensates



Atom Laser
Research

4EHT



Physics in a New Era: An Overview

2001 National Research Council Report

Physics Survey Overview Committee Board on Physics and Astronomy (BPA)

“The accomplishments of Physics, the increasing power of its instruments, and its expanding reach into other sciences have generated an unprecedented set of scientific opportunities”. The committee has identified six such “Grand Challenges” listed below in no particular order:

- *Developing quantum technologies **
- *Creating new materials **
- *Understanding complex systems **
- *Unifying the forces of Nature **
- *Exploring the universe*
- *Applying Physics to Biology **

** OBPR Physical Sciences research content relevant*